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Differential Pressure Transmitter JUMO MIDAS DP10

Type 401050



Type 401050/000-xxx-xxx-xxx-xx-xxx-61

Brief description

This differential pressure transmitter measures the pressure in liquid and gaseous media. The difference between the two pressures is converted into an analog output signal. The piezo-resistive silicon sensor is built into a stainless steel housing.

Technical data

Unless further specified, all the following percentage values refer to the measurement span.

Reference conditions
as per DIN 16 086 and EN 60 770

Measuring ranges

Meas. range	Max. system pressure[2]	Max. overload on both sides[2]	Max. single-sided overload		Bursting pressure	Overall error[3] (% of full scale)	Long-term stability (per annum)
			+ side	- side			
0 to +0.4 bar	5 bar	7.5 bar	7.5 bar	5 bar	≥ 60 bar	≤ 2.5%[4]	≤ 0.6%
0 to +0.6 bar						≤ 2.5%[4]	
0 to +1 bar						≤ 2.3%[4]	
0 to +1.6 bar	10 bar	15 bar	15 bar	10 bar	≥ 60 bar	≤ 2.0%[4]	≤ 0.6%
0 to +2.5 bar						≤ 2.0%[4]	≤ 0.4%
0 to +4 bar	30 bar[1]	45 bar	15 bar	10 bar	≥ 60 bar	≤ 1.8%[4]	≤ 0.4%
0 to +6 bar			25 bar			≤ 1.8%[4]	
0 to +10 bar			30 bar			≤ 1.5%[4]	
0 to +16 bar			30 bar			≤ 1.5%[4]	

Parts in contact with medium[5]
stainless steel, Mat. Ref. 1.4571
stainless steel, Mat. Ref. 1.4435
stainless steel, Mat. Ref. 1.4305
plastic, PBT GF30 or
plastic, POM GF40
seal: FPM

Output
4 — 20 mA 2-wire
burden ≤ (U_B-10 V) / 0.02A
0.5 — 4.5 V ratiometric
burden ≥ 20 kΩ

Burden error
< 0.5 %

Zero offset
≤ 0.3 %

Thermal hysteresis
(within the compensated range -15 to +85°C)
for meas. ranges ≤ 0.6 bar: ≤ ± 1%
for meas. ranges > 0.6 bar: ≤ ± 0.5%

Step response
for current output ≤ 3 msec
for voltage output ≤ 10 msec

Supply voltage
10 — 30 V DC (for 4 — 20 mA output)
5 V DC ±0.5 V (for 0.5 — 4.5 V output)
Ripple: the voltage peaks must not go outside the limits specified for the supply.
Max. current drawn: 25 mA

Supply voltage error
≤ 0.02 % per V for 4 — 20 mA output

Nominal supply voltage
24 V DC
ratiometric for 0.5 — 4.5 V output

Operating temperature
ambient: -20 to +80 °C
medium: -15 to +100 °C[6]
storage: -50 to +100 °C

Electromagnetic compatibility (EMC)
as per EN 61 326
interference emission: Class B
interference immunity: to industrial requirements

1 Maximum ambient temperature +60°C
2 For simultaneous pressure on both + and - sides
3 The total error includes errors due to linearity, hysteresis, reproducibility and temperature drift over the range from -15 to +85°C.
4 of full scale
5 The customer must test the compatibility with the medium being measured.
6 If the medium is water at temperatures above 50°C, then pipes or hoses must be used to separate the transmitter from the process. E. g. for water at 85°C, at least 200 mm long (depending on the ambient temperature).
® Bayer Material Science

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Mechanical shock
(to IEC 68-2-27)
100 g/1msec

Mechanical vibration
(to IEC 68-2-6)
≤ 20 g for 15 — 2000 Hz

Enclosure protection
(to EN 60529)
with round connector M12 x 1: IP67
with bayonet to DIN 72585: IP67
with fixed cable: IP67

Process connection
2 x G1/8 internal thread
adapters for pipes and hoses: see order details

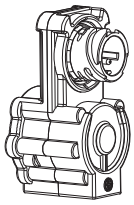
Electrical connection
see order details
round connector M12 x 1
or
bayonet connector DIN 72585
or
fixed cable, 2 m (other lengths on request)

Operating position
unrestricted
(deviations from the nominal operating position can cause an error of up to 2 mbar)

Weight
180 g
(approx. 220 g with mounting bracket)

Fixing options
- 3 holes on housing bottom
- mounting bracket (accessory)
- on measurement lines (e.g. 6 x 1 pipe)

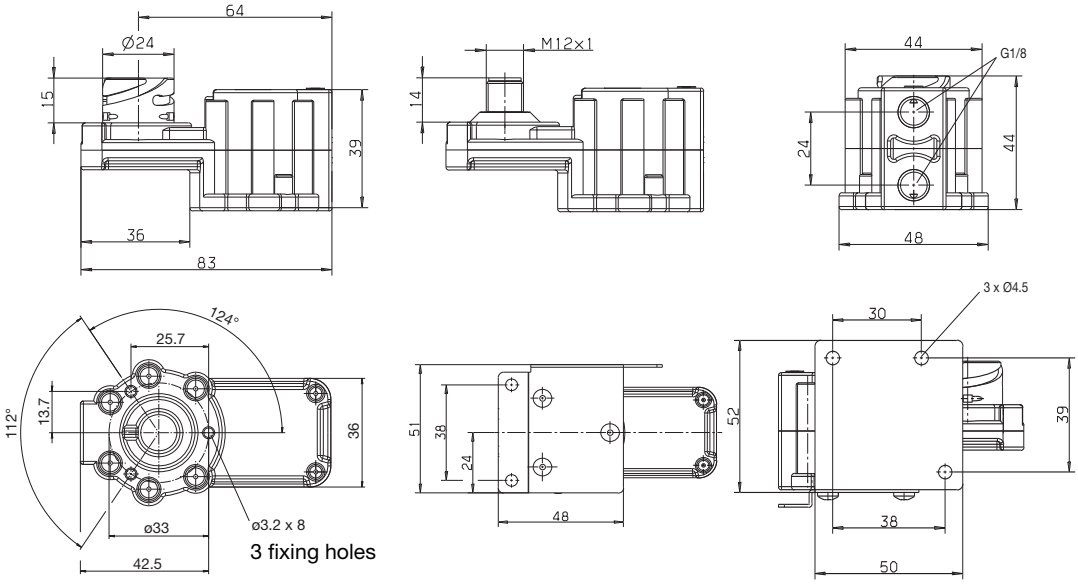
Nominal position



Electrical connection

		 Bayonet connector	 Round connector	Cable
Voltage output				
Supply voltage 11.5 — 30 V DC ±0.5 V (with output 0 to 10 V) 5 V DC ±0.5 V (with output 0.5 to 4.5 V)		1 L+ 2 L-		white L+ brown L-
Output 0 — 10 V 0.5 — 4.5 V		2 - 3 +		brown - black +
Current output				
Supply voltage 10 — 30 V DC			1 + 3 -	white L+ brown L-
Output 4 — 20 mA (2-wire)			1 + 3 -	white L+ brown L-

Dimensions



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Order details

	(1)	**Basic type**
401050		Differential pressure transmitter JUMO MIDAS DP 10
	(2)	**Basic type extensions**
/000		none
/999		special version
	(3)	**Input for differential pressure**
452		0 — 0.4 bar
453		0 — 0.6 bar
454		0 — 1.0 bar
455		0 — 1.6 bar
456		0 — 2.5 bar
457		0 — 4 bar
458		0 — 6 bar
459		0 — 10 bar
460		0 — 16 bar
999		special measuring range
	(4)	**Output**
405		4 — 20 mA 2-wire
412		0.5 — 4.5 V 3-wire
415		0 — 10 V 3-wire
	(5)	**Process connection**[1]
297		stainless steel tube, 6mm dia., stainless steel 1.4571
305		screwed pipe joint, 6mm dia., stainless steel 1.4571 / FPM
306		screwed pipe joint, 6mm dia., brass
593		2 x G 1/8 to EN 837
	(6)	**Housing material**
68		PBT
	(7)	**Seal material**
601		FPM
	(8)	**Electrical connection**
11		fixed cable, 2 m
36		round connector M 12 x 1
53		bayonet connector to DIN 72585
	(9)	**Extra codes**
000		none

	(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)		(8)
Order code		/		-		-		-		-		-		-		/	
Order example	401050	/	000	-	454	-	405	-	593	-	68	-	601	-	36	/	000

Accessories

Designation	**Sales No.**
4-pole straight connector M12 x 1 with 2m PVC cable	40/00404585
4-pole angled connector M12x1 with 2m PVC cable	40/00409334
Angled mounting bracket	40/00448193
Straight mounting bracket	40/00490132
Bayonet jack with 3m cable	40/00463392

[1] other process connections on request.